May 24, 2012

Ms. Shelia Desai
Remedial Project Manager
U.S. Environmental Protection Agency
77 West Jackson Boulevard (SR-6J)
Chicago, IL 60604

Subject: **Technical Review Comments on "Revised Remedial Investigation Report"**
Plainwell Mill Site, Operable Unit 7 of
Allied Paper/Portage Creek/Kalamazoo River Site
Plainwell, Allegan County, Michigan
Remedial Action Contract (RAC) 2 No. EP-S5-06-02
Work Assignment No. 141-RSBD-059B

Dear Ms. Desai:

SulTRAC has reviewed the above-referenced document as part of its oversight activities for the former Plainwell Mill Site in Plainwell, Allegan County, Michigan. The document is dated April 20, 2012, and was prepared by Conestoga-Rovers & Associates for Weyerhaeuser Company, the responsible party for the site.

SulTRAC reviewed the document to assess its technical adequacy and whether it addresses U.S. Environmental Protection Agency (EPA) comments (dated February 17, 2012) issued to Weyerhaeuser Company on the draft RI report dated June 2011. SulTRAC's technical review comments on the document (including separate review comments on the human health and ecological risk assessments that CRA submitted as part of the report) are enclosed.

If you have any questions about this submittal, please call me at (312) 201-7491.

Sincerely,

Jeffrey Lifka, CHMM
Project Manager

Enclosures (3)

cc: Parveen Vij, EPA Contracting Officer (letter only)
Mindy Gould, SulTRAC Program Manager
Eric Morton, SulTRAC Human Health Risk Assessor
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ENCLOSURE 1

TECHNICAL REVIEW COMMENTS ON
"REVISED REMEDIAL INVESTIGATION REPORT"
PLAINWELL MILL SITE, OPERABLE UNIT 7 OF
ALLIED PAPER/PORTAGE CREEK/KALAMAZOO RIVER SITE
PLAINWELL, ALLEGAN COUNTY, MICHIGAN

(Three Pages)

TECHNICAL REVIEW COMMENTS ON
"REVISED REMEDIAL INVESTIGATION REPORT"
PLAINWELL MILL SITE, OPERABLE UNIT 7 OF
ALLIED PAPER/PORTAGE CREEK/KALAMAZOO RIVER SITE
PLAINWELL, ALLEGAN COUNTY, MICHIGAN

Under Contract No. EP-S5-06-02, Work Assignment No. 141-RSBD-059B, SulTRAC was requested by the U.S. Environmental Protection Agency (EPA) to review the revised remedial investigation (RI) report as part of its oversight activities for the Plainwell Mill Site located in Plainwell, Allegan County, Michigan. The RI document is dated April 20, 2012, and was prepared by Conestoga-Rovers & Associates (CRA) for Weyerhaeuser Company (Weyerhaeuser), the responsible party for the site, as required by the Consent Decree. SulTRAC reviewed the document to assess its technical adequacy and whether it addresses EPA comments (dated February 17, 2012) issued to Weyerhaeuser on the draft RI report dated June 2011.

SulTRAC's general and specific review comments on the document are presented below. The comments refer to specific sections, pages, and paragraphs of the report. The first complete paragraph on each page is identified as "Paragraph 1." An incomplete paragraph at the top of a page (one that carries over from the previous page) is identified as "Paragraph 0."

GENERAL COMMENTS

1. After the RI field activities were completed, the Michigan Department of Transportation (MDOT) installed two sewer lines through portions of the site. The RI report must be revised to discuss any impacts the MDOT sewer project might have with respect to conclusions pertaining to the RI. For example, the report should include an evaluation of the final Prince Street and Church Street sewer alignments and discuss whether contamination present at depth possibly was disturbed and brought to the surface, which could have changed site conditions. Moreover, MDOT drainage outlet details indicate that the planned sewer pipe floor elevations for the Prince Street and Church Street sewers ranged from about 715 to 712 feet above mean sea level (msl). Groundwater elevation maps presented in the RI report indicate that groundwater elevations measured in January and February 2010 ranged from about 711 to 709 feet above msl near the Prince Street sewer, and about 712.4 to 712.2 feet above msl near the Church Street sewer. The Revised RI report (and subsequent Revised RI report addendum to be submitted upon completion of additional activities) should include an evaluation of possible impacts of the new sewer lines on groundwater flow.

2. During the MDOT sewer installation project, paper residual seams were observed in the subsurface in the area of the former wastewater treatment lagoons. The RI report should be revised to discuss how depth and extent of these observed paper residuals relate to the current understanding discussed in the RI report.

3. The draft RI report divided the site into investigation areas 1, 2, 3, 3A, 3B, 3C, 3D, and 3E. The revised RI report (and risk assessments) refers to 11 new redevelopment areas. For additional clarity, previously designated investigation areas (Areas 1, 2, 3, 3A, 3B, 3C, 3D, and 3E) should be superimposed over the 11 new redevelopment areas on Figure 1.2, because the relationship between the designations is discussed in the revised RI report.

SPECIFIC COMMENTS

1. **Section 5.2.2.1, Page 58, Paragraph 3**. Figure 1.2 shows that investigation Area 1 contains "new" Commercial Area 1 (wooded lot); however, Commercial Area 1 is not included in the title of this section or the description provided in the text. The text should be revised to state that Area 1 includes redevelopment areas Residential Areas 1 through 3, Commercial Area 1, and Waterfront Plaza. In addition, for further clarity, the text in this section and all subsequent sections describing the relationship between the original investigation areas and the new redevelopment areas should be revised to indicate whether the original investigation areas contain all or portions of the new redevelopment areas.

2. **Section 5.2.2.6, Page 65, Paragraph 1**. The title of this section (and the description provided in the text) should be revised to state that original investigation Area 3C also includes part of Waterfront Plaza.

3. **Figure 5.5 and Plans 16 through 19**. Figure 5.5 shows RI sampling locations in the Waterfront Plaza redevelopment area. Plans 16 through 19 presented in Volume III show RI soil sample results for the same area. The text should be revised to discuss the lack of sampling points in this area, and whether additional sampling is needed to adequately characterize it. This comment also pertains to the limited groundwater data points available for Mixed Residential/Commercial Area 1.

4. **Appendix E**. The responses to EPA comments (issued to Weyerhaeuser and CRA on February 17, 2012) in a letter prepared by CRA dated April 20, 2012, state that additional information now appears in Appendix E to the revised RI report. Specifically, response to EPA General Comment No. 4 states that a copy of the "Summary of Soil and Groundwater Investigation Activities, Fannie Pell Park Western Bridge Footing, Former Plainwell, Inc. Mill Property, Plainwell Michigan" memorandum is provided in Appendix E. The above-referenced memorandum is not included in Appendix E; therefore, Appendix E should be revised to include this information. Additionally, responses to EPA Specific Comments No. 7 and 8 state that ecological risk assessment information is now provided in Appendix E to the revised RI report. This information is not included in Appendix E; therefore, Appendix E should be revised to include the above-referenced information, or the CRA responses to EPA comments should be revised to cite the correct location of this information if it appears in a different appendix.

ENCLOSURE 2

**TECHNICAL REVIEW COMMENTS ON THE
REVISED BASELINE HUMAN HEALTH RISK ASSESSMENT
PLAINWELL MILL SITE, OPERABLE UNIT 7 OF
ALLIED PAPER/PORTAGE CREEK/KALAMAZOO RIVER SITE
PLAINWELL, ALLEGAN COUNTY, MICHIGAN**

(Seven Pages)

**TECHNICAL REVIEW COMMENTS ON THE
REVISED BASELINE HUMAN HEALTH RISK ASSESSMENT
PLAINWELL MILL SITE, OPERABLE UNIT 7 OF
ALLIED PAPER/PORTAGE CREEK/KALAMAZOO RIVER SITE
PLAINWELL, ALLEGAN COUNTY, MICHIGAN**

Under Contract No. EP-S5-06-02, Work Assignment No. 141-RSBD-059B, SulTRAC was requested by the U.S. Environmental Protection Agency (EPA) to review Revision 1 of the Remedial Investigation Report (RI) (RI Revision 1) for the Plainwell MillSite located in Plainwell, Allegan County, Michigan. The RI Revision 1 is dated April 20, 2012, and was prepared by Conestoga-Rovers & Associates(CRA) for the Weyerhaeuser Company as required by the Consent Decree. These comments focus on the portions of the RI Revision 1 related to the human health risk assessment (HHRA)—particularly Section 8.0 and affiliated appendices, tables, and figures. SulTRAC reviewed the document to assess whether the HHRA portions of the RI Revision 1 are consistent with (1) current risk assessment guidance; (2) EPA comments on CRA's memorandum, dated November 9, 2011, presenting proposed modifications to the HHRA; and (3) discussions regarding those EPA comments in several conference calls.

The errors and concerns identified by SulTRAC appear in the general and specific comments below. The first complete paragraph on each page is identified as "Paragraph 1." An incomplete paragraph at the top of a page (one that carries over from the previous page) is identified as "Paragraph 0." References cited in the comments are listed following the specific comments.

GENERAL COMMENTS

The HHRA portions of the RI Revision 1 generally follow relevant EPA and state risk assessment guidance, and EPA comments on proposed modifications to the HHRA. Several issues must be addressed before the HHRA can be approved, and these are described in the following general and specific comments.

1. The executive summary and Section 10.1.3 (a summary of the HHRA) should be revised as necessary to reflect any changes made to Section 8.0 (and related appendices, tables, and figures) in response to general and specific comments.

2. Based on professional judgment, the HHRA assumes an exposure frequency for direct contact soil and groundwater exposure pathways for the utility worker of 2 days/year under reasonable maximum exposure (RME) conditions, and 1 day/year under central tendency exposure (CT) conditions. Much of the site is expected to be developed for multi-story, multi-occupant

residential and/or commercial use. Such tenant spaces would be reasonably expected to need utility work (including installation, maintenance, and repair) more often than 1 or 2 days/year. For this very reason, owners of these spaces often employ building managers to help facilitate and coordinate utility and other work in these spaces. Within this context, the exposure frequency for the utility worker must be increased to more reasonably reflect likely job descriptions at these types of spaces. It is suggested that CRA increase the exposure frequencies by an order of magnitude to 20 days/year and 10 days/year under RME and CT conditions, respectively. The revised exposure frequencies should be supported by a clear justification.

3. Section 8.1.5.6 states that appendix tables are designed to present chemicals that contribute 95 percent of the overall cumulative risks and hazards. This approach is fine as far as it goes. However, Section 8.1.5.6 also states that "in the summary tables presented below only the chemicals with hazard quotients of 1 or greater are shown as contributing COPCs." Numerous examples of hazards less than 1 are in the summary tables. For example, a chemical may be identified as a contributing chemical of potential concern (COPC) based on risk. For these chemicals, it is appropriate to show the associated hazard for completeness in the in-text tables. However, these COPCs should not be discussed in the text as contributors to hazard; inclusion of these COPCs in the text discussion clutters the discussion and is not helpful. In other cases, chemicals with no risks or risks < 1E-06 and hazards < 1 are shown as contributing COPCs. For example, see the future resident – "Undisturbed" surface soil exposure scenario on page 264 – aluminum has no risk and a hazard of 0.88 for groundwater. Several other COPCs have hazards well above 1; aluminum is clearly a minor contributor to total groundwater hazards and should not be listed in the in-text table or discussed in the text. The HHRA (Section 8.0) must be closely reviewed and revised to eliminate presentation and especially discussion of COPCs that are included only to reach the 95 percent criteria. The text (including the in-text tables) should focus on the drivers of risk (≥ 1E-06) and hazard (hazards >1 or COPCs contributing to a segregated hazard >1 in instances where no COPCs with hazards > 1 were identified).

4. Appendix I presents *Risk Assessment Guidance for Superfund* (RAGS) D-style tables presenting receptor-specific exposure, risk, and hazard results. Segregated hazards are presented at the bottom of each table. These tables are not explained or discussed in the text of Section 8.0. The segregated hazard results also do not include hazards not associated with a particular target organ. This means that some significant hazards (for example, those associated with iron) go unreported as part of the segregated hazards. EPA's RAGS recommends that discussion of segregated

hazards is particularly important in cases where the cumulative hazard exceeds 1, but no individual COPC is associated with a hazard > 1 (EPA 1989).

Section 8.0 must be revised to explain and document the segregated hazard calculation process and discuss segregated hazards as appropriate. The discussion of segregated hazards should be coordinated with revisions made in response to General Comment 4 to focus the text and in-text tables on the drivers of risk (≥ 1E-06) and hazard (hazards >1).

5. The in-text tables and related text focus on COPCs contributing risks > 1E-06. However, as 1E-06 is the low end of EPA's risk range, it is important to identify and discuss any COPCs associated with risks equal to 1E-06. Therefore, Section 8.0 should be revised to identify and discuss COPCs contributing risks ≥ 1E-06.

6. Figure 5.5 shows Remedial Investigation (RI) sampling locations in the Waterfront Plaza redevelopment area. Plans 16 through 19 show RI soil sample results for the same area. The HHRA text (in particular, Section 8.1.6 [Uncertainty Analysis]) should be revised to discuss the lack of sampling points in this particular area and whether additional sampling is needed to adequately characterize it. This comment also pertains to the limited groundwater data points available for Mixed Residential/Commercial Area 1.

7. Minor editorial errors of two primary types were identified. First, in a variety of cases, footnotes that should have been superscripted were not (see pages 202 and 204, as examples). Second, a necessary conversion factor is incorrectly presented as milligrams per kilogram (mg/kg); the conversion factor should be presented as kg/mg (see pages 208, 210, and 213, as examples). Section 8.0 should be closely reviewed to identify any editorial errors. These editorial errors should be corrected.

SPECIFIC COMMENTS

1. **Section 8.1.3.1.1, Page 186, Paragraph 1**. Section 8.1.3.1.1 characterizes the exposure setting under current land use conditions. The second sentence includes the phrase ". . . WWTP) buildings . . . ." The single parenthesis is not required and should be removed.

2. **Section 8.1.3.2.5, Page 192, Paragraph 2**. Section 8.1.3.2.5 discusses exposure scenarios and completed exposure pathways considered in the HHRA. The last sentence in the second paragraph includes the phrase ". . . construction, utility workers, and commercial workers." The

word “workers” should be added after “construction” and the revised phrase should read “. . . construction workers, utility workers, and commercial workers.”

3. **Section 8.1.3.3.2, Page 203, Paragraph 2**. Section 8.1.3.3.2 presents the exposure scenario assumptions for the various receptors considered in the HHRA. The first sentence of the subject paragraph includes the phrase “. . . ambient air, d a VF was used . . . .” This phrase should be revised to remove the single “d” and should read “. . . ambient air, a VF was used . . . .”

4. **Section 8.1.3.3.2, Page 212, Paragraph 2**. Section 8.1.3.3.2 presents the exposure scenario assumptions for the various receptors considered in the HHRA. Several errors were identified in the in-text table. First, for exposure duration, the CT and RME values are labeled incorrectly—they are reversed. Second, the non-carcinogenic averaging time is incorrectly reported as 365 days. According to EPA guidance, non-carcinogenic averaging time is calculated as the exposure duration (ED) (years) x 365 days/year (EPA 1989). Therefore, the in-text table should be revised to present the non-carcinogenic averaging time as 9,125 days (25 years x 365 days/year) and 3,285 days (9 years x 365 days/year) under RME and CT conditions, respectively.

5. **Section 8.1.3.4.1, Page 218, Paragraph 2**. Section 8.1.3.4.1 discusses the evaluation of non-residential adult exposures to lead in soil and water. The first sentence states “as the average exposure frequency for the trespasser and recreational user are only 25 days/year and 35 days/year, respectively, the lead exposure for the trespasser and recreational user was considered to be low and not of concern, and therefore, lead exposure was not evaluated further for a trespasser and recreational user.” While EPA guidance recommends evaluating potential lead exposures using the average medium-specific lead concentrations, exposure frequency should be considered at RME levels (EPA 2009). For the trespasser and recreational user, the RME exposure frequency should be presented as 50.6 and 70 days/year, respectively.

   The subjective determination that lead exposures for the trespasser and recreational user were low and therefore not further evaluated is not adequately supported and requires further explanation. Part of the required additional explanation may be found in the second sentence in the subject paragraph, which states that resident exposure is considered protective of the trespasser and recreational user exposure. While residential exposure is not evaluated for all exposure areas (for example, the Waterfront Plaza), a residential-based lead soil screening level could be used as a conservative surrogate for receptor-specific lead soil screening levels for trespasser and

recreational receptors. If the average concentration of lead in soil at each exposure area is less than the residential-based lead soil screening level, lead can be reasonably assumed to pose no significant risk to trespasser and recreational user receptors.

6. **Section 8.1.3.4.1.2, Page 222, Paragraph 1**. Section 8.1.3.4.1.2 presents the adult lead exposure equation parameters considered in the HHRA. The text states that an averaging time of 168 days/year was used for both construction and utility workers. This value is appropriate for the construction worker based on the explanation provided in the text. However, utility work can reasonably be expected to occur throughout the year (e.g., frozen pipes, cable installation during the winter, etc.). Therefore, the averaging time for the utility worker should be revised to 365 days/year, or additional explanation should be provided to justify the current value.

7. **Section 8.1.3.4.2, Page 222, Paragraph 3**. The text discusses the use of average lead concentrations at particular exposure areas. What is left unexplained is why some exposure areas (for example, the Waterfront Plaza) were not considered (lead was not a COPC at the Waterfront Plaza). Section 8.1.3.4.2 should be revised to clearly explain why potential lead exposure was not evaluated for all exposure areas.

8. **Section 8.1.3.4.2, Page 223, Paragraph 0**. The in-text table provides only a single soil result for each exposure area. However, under future land use conditions, redevelopment may occur as slab-on-grade or with basements. Therefore, Section 8.1.3.4.2 (and related calculations) should be revised to present the lead concentrations in surface soil and the total soil column (0 to 10 feet below ground surface [bgs]) used in the respective undisturbed and disturbed scenarios (see Section 8.1.5.7.1).

9. **Section 8.1.5.3, Page 234, Paragraph 1**. Section 8.1.5.3 presents the risk quantification summary. The in-text table for Residential Area 3 was found to contain an error. For potential exposure to surface soil for the resident (future) under RME conditions, the hazard index (HI) (7.3E-01) is less than 1; the notation in the column "HI>1" should be revised to "No."

10. **Section 8.1.5.4, Page 248, Paragraph 1**. Section 8.1.5.4 presents a summation of risks. The in-text table for Residential Area 2 was found to contain an error. For potential exposure for the resident (future) including surface soil, the total risk (8.7E-04) is > 1E-04; the notation in the column "Risk > 10-4" should be revised to "Yes."

11. **Section 8.1.5.5, Page 258 through 262**. Section 8.1.5.5 presents a summary of risk and hazard exceedances. Risks are identified as to whether they exceed 10^{-6}. This is insufficient. First, as noted in the general comments, risks ≥ 1E-06 should be identified in the HHRA. Second, it is important to note if any risks are > 1E-04 (the upper end of EPA's risk range). This information could easily be inserted into the in-text tables by using footnotes or an additional column.

12. **Section 8.1.5.6, Page 263, Paragraph 1**. Section 8.1.5.6 presents risk and hazard contributions. The last sentence in the subject paragraph states "however, in the summary tables presented below only the chemicals with hazard quotients of 1 or greater are shown as contributing COPCs." This statement is incorrect. Numerous examples of hazards less than 1 are in the summary tables. For example, a chemical may be identified as a contributing COPC based on risk. For these chemicals, it is appropriate to show the associated hazard for completeness in the in-text tables. However, these COPCs should not be discussed in the text as contributors to hazard; inclusion of these COPCs in the text clutters the discussion and is not helpful. In other cases, chemicals with no risks or risks < 1E-06 and hazards < 1 are shown as contributing COPCs. For example, see the future resident – "Undisturbed" surface soil exposure scenario on page 264 – aluminum has no risk and a hazard of 0.88 for groundwater. Several other COPCs have hazards well above 1; aluminum is clearly a minor contributor to total groundwater hazards and should not be listed in the in-text table or discussed in the text. Section 8.1.5.6 should be closely reviewed and revised accordingly.

13. **Section 8.1.5.6.2, Page 267, Paragraph 1**. Section 8.1.5.6.2 presents risk and hazard contributors for Residential Area 2. For the future resident – "disturbed" soil exposure scenario, the hazard quotient (HQ) for soil for arsenic is shown as 1.1; this value is incorrect. The correct value, as shown in Table I.2.46.RME, is 0.4. The in-text table should be revised accordingly. Similarly, the cumulative RME risk across all media for this same receptor/scenario is shown as 8.1E-04; this value is incorrect. The correct value, as shown in Table I.2.41.RME, is 8.7E-04. The in-text table should be revised accordingly.

14. **Section 8.1.5.7.1, Page 291, Paragraph 1**. Section 8.1.5.7.1 presents the results from the adult lead model. The in-text table presents a result of 2.4 micrograms per deciliter (µg/dL) for the future commercial worker under undisturbed conditions at Commercial Area 4. The result is referenced to Table I.11.41. However, the subject result is not included in Table I.11.41; this table includes only the last three results shown in the in-text table. The in-text table should be revised accordingly.

15. **Section 10.1.3, Pages 340 through 348**. Section 10.1.3 presents a summary of the significant results of the HHRA for the RI Revision 1. Review of this section reveals that only risks results > 1E-06 and hazards > 1 are discussed. This approach should be clearly stated at the beginning of Section 10.1.3. Further, the discussion of risks should be revised from risks > 1E-06 to risks ≥ 1E-06. In addition, several of the bulleted items in this section are excessively long, containing over 10 sentences. Wherever possible, bulleted items should be revised to include sub-bulleted items to break up longer discussions.

    Also, in a limited number of cases (for example, see the discussion of the utility worker), the text explains states that cumulative risk was greater than 1E-06, but there were no individual COPCs with risks > 1E-06. This language would be useful in the discussion of other receptors. Section 10.1.3 should be closely reviewed and the text added where appropriate. In other cases (see the discussion of the construction worker), the cumulative hazard is > 1, but none of the COPCs had calculated hazards > 1. In these instances, segregated hazard results are used to determine if the cumulative hazard is truly > 1. The HHRA (Section 8.0), as well as the summary of the HHRA (Section 10.1.3), should be revised to discuss the segregated hazard results (see the RAGS D Table 9s).

16. **Section 10.1.3, Page 347, Paragraphs 2 and 3**. These paragraphs present a summary of the risks and hazards for the construction worker. The discussion does not include results for Mixed Residential/Commercial Area 1. Total risks for this exposure area equal 1E-06. Consistent with General Comment 6, the HHRA (Section 8.0) and the summary of the HHRA (Section 10.1.3) should be revised to discuss all risks ≥ 1E-06.

REFERENCES

U.S. Environmental Protection Agency (EPA). 1989. *Risk Assessment Guidance for Superfund (RAGS). Volume I, Human Health Evaluation Manual (Part A).* Interim Final. Office of Emergency and Remedial Response. Washington, DC. EPA/540/1-89/002. December.

EPA. 2009. Frequent Questions from Risk Assessors on the Adult Lead Methodology (ALM). October 27. On-Line Address: http://www.epa.gov/superfund/lead/almfaq.htm

ENCLOSURE 3

**TECHNICAL REVIEW COMMENTS ON THE
REVISED SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT
PLAINWELL MILL SITE, OPERABLE UNIT 7 OF
ALLIED PAPER/PORTAGE CREEK/KALAMAZOO RIVER SITE
PLAINWELL, ALLEGAN COUNTY, MICHIGAN**

(Three Pages)

TECHNICAL REVIEW COMMENTS ON THE
REVISED SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT
PLAINWELL MILL SITE, OPERABLE UNIT 7 OF
ALLIED PAPER/PORTAGE CREEK/KALAMAZOO RIVER SITE
PLAINWELL, ALLEGAN COUNTY, MICHIGAN

Under Contract No. EP-S5-06-02, Work Assignment No. 141-RSBD-059B, SulTRAC was requested by the U.S. Environmental Protection Agency (EPA) to review Revision 1 of the Remedial Investigation Report (RI) (RI Revision 1) for the Plainwell MillSite located in Plainwell, Allegan County, Michigan. The RI Revision 1 is dated April 20, 2012, and was prepared by Conestoga-Rovers & Associates(CRA) for the Weyerhaeuser Company as required by the Consent Decree. These comments focus on portions of the RI Revision 1 that relate to the screening-level ecological risk assessment (SLERA), particularly Section 9.0 and related appendices, tables, and figures. SulTRAC also reviewed the Technical Memorandum, Proposed Toxicity Reference Values for Avian and Mammalian Receptors, Step 3A Refinement of Constituents of Potential Ecological Concern (Technical Memorandum). SulTRAC reviewed these documents to assess whether the SLERA portions of the RI Revision 1 are consistent with current risk assessment guidance, and with EPA comments on CRA's memorandum, dated November 9, 2011, presenting proposed modifications to the SLERA.

The SLERA portions of the RI Revision 1 generally follow relevant EPA and state risk assessment guidance, and EPA comments on proposed modifications to the SLERA. However, several issues must be addressed before the SLERA can be approved, and these are described in the following general and specific comments.

The first complete paragraph on each page is identified as "Paragraph 1." An incomplete paragraph at the top of a page (one that carries over from the previous page) is identified as "Paragraph 0." References cited in the comments are listed following the specific comments.

GENERAL COMMENTS

1. The Executive Summary and Section 10.1.4 (a summary of the SLERA) should be revised as necessary to reflect any changes to Section 9.0 (and related appendices, tables, and figures) in response to general and specific comments.

2. The SLERA assesses potential risk to ecological receptors within 11 areas of the site. The SLERA does not assess potential habitat within each of these areas and what ecological community now or in the future is likely to be present within each of those areas. At a number of

these locations, if development as residential or commercial industrial properties occurs, land use likely would not support an ecological community, and an evaluation beyond the SLERA would be of little or no value for those locations. However, a better description of both current and future habitats assuming implementation of the current land use plan should be provided to support the ecological risk assessment and resulting risk management decisions.

3. The Technical Memorandum presents a proposed approach for selecting toxicity reference values (TRV) for use in the Step 3a evaluation. The memorandum provides values based on information provided in EPA's Ecological Soil Screening Levels (Eco-SSL) documents (EPA 2005, 2007, and 2008) and for those constituents not addressed in EPA's EcoSSL documents, values are provided from the literature. The proposed alternate values from the literature sources are acceptable. However, it is not acceptable to modify the EcoSSL NOAEL TRVs based on the documentation provided—this is not consistent with EPA's use of these values. If the objective is to provide the risk managers an understanding of the potential range of risks at the site, it is more appropriate to identify TRVs based on the lowest observed adverse effect level (LOAEL) for each constituent identified as a chemical of potential concern based on the SLERA results. When identifying those values, care should be taken to note those studies applicable to this site and relevant to the potential receptors. An approach to be used to identify those values should be provided to EPA for review and approval.

SPECIFIC COMMENTS

1. **Section 9.0, Page 297, Paragraph 1**. Section 9.0, the introduction to the SLERA, notes that Step3a—a refinement of chemicals identified as constituents of potential ecological concern—is provided in an addendum. This document is not listed in the table of contents and does not appear within the RI document. The text should be revised to correct this statement by indicating that Step3a will be provided in the future as an addendum.

2. **Section 9.1.4, Page 301, Paragraph 3**. Section 9.1.4 discusses contaminant fate and transport, and impact of these on the SLERA. The text states that areas of groundwater discharges apparently are not present within the assessment area. This statement should reference the discussion on groundwater flows at the site and groundwater table elevations as these relate to ground surface.

3. **Section 9.1.5, Page 301, Paragraph 4**. Section 9.1.5 presents the potentially complete exposure pathways for the SLERA. It notes that the inhalation exposure route is generally not considered

significant. The text should also identify the dermal pathway as an exposure route generally not considered significant.

4. **Section 9.2.1, Page 307, Paragraph 0**. Section 9.2.1 presents the exposure estimates for the various receptors considered in the SLERA. The last sentence in this discussion notes the ecological screening values (ESV) and should be modified to state that "Constituents that were not detected and do have an available ESV, *and whose laboratory detection limit was below the ESV*, were eliminated from further evaluation." (Italic text notes additions to the text).

5. **Appendix J, Table J.4**. Table J.4 lists the ESVs. It includes those for a number of specific polycyclic aromatic hydrocarbons (PAH), while the evaluation is only for the low molecular weight and high molecular weight PAHs. The reader would be better served with a list of ESVs of those PAHs within each category, rather than a listing of ESVs for PAHs not relevant to the SLERA.

   In several instances, the constituent reported in the analytical data reports did not match the chemical name in the ESV source document, and the name from the source document was provided—but not in all cases. The source document name should be provided in the table for dibromomethane and idomethane.

6. **Appendix J, Table J.5**. The footnotes should provide definitions for the terms "Ess Nutr" and "SQ."

7. **Appendix J, Table J.6**. No footnotes are provided for the terms used in this table. Addition of these footnotes to the table is necessary.

8. **Appendix J, Table J.4**. A definition of the term "BCOC" should appear in the footnotes.

9. **Appendix J, Tables J.8 through J.19**. A definition of the term "SQ" should appear in the footnotes.

REFERENCES

U.S. Environmental Protection Agency (EPA). 2005. *Guidance for Developing Ecological Soil Screening Levels.* OSWER 9285.7-55. February.
On-line address: http://www.epa.gov/ecotox/ecossl/SOPs.htm

EPA. 2007. Ecological Soil Screening Levels. On-line address: http://www.epa.gov/ecotox/ecossl/

EPA. 2008. Ecological Soil Screening Levels. On-line address: http://www.epa.gov/ecotox/ecossl/